MAINTENANCE MANAGEMENT PLAN
(OPERATIONAL PHASE)

FOR THE NEW AGRICULTURAL DEVELOPMENT: CORNER FARM (PORTION 7 OF FARM NO.466, CALEDON)

16 April 2018

Prepared for: Vacation Station (Pty) Ltd
Mr. Wilmer Ferreira / Mr. Dimitri Jacobs
PO Box 43
Grabouw
7160
Tel: 021 859 7536
Email: cornerfarm@twk.co.za

Prepared by: Eco Impact Legal Consulting (Pty) Ltd
P.O. Box 45070
Claremont
South Africa
7735
Tel: 021 671 1660
Email: admin@ecoimpact.co.za

	Title: **MAINTENANCE MANAGEMENT PLAN (OPERATIONAL PHASE) - NEW AGRICULTURAL DEVELOPMENT: CORNER FARM (PORTION 7 OF FARM NO.466, CALEDON)**
Date: 04 August 2017	**Report Status:** 1st draft
Carried Out By: Eco Impact Legal Consulting (Pty) Ltd P.O. Box 45070 Claremont 7735 Tel: 021 671 1660 E-mail: admin@ecoimpact.co.za	**Client:** Vacation Station (Pty) Ltd Mr. Wilmer Ferreira / Mr. Dimitri Jacobs PO Box 43 Grabouw 7160 Tel: 021 859 7536 Email: cornerfarm@twk.co.za
Author: Lauren Abrahams	**Client Contact Person:** Mr. Wilmer Ferreira / Mr. Dimitri Jacobs

© COPYRIGHT: Eco Impact Legal Consulting (Pty) Ltd

Verification	Capacity	Name	Signature	Date
By Author	EAP	Lauren Abrahams		16 APRIL 2018

1. INTRODUCTION

This MMP has been compiled for the following:

- The existing drainage line crossing located between sites A and B must be upgraded to ensure access to site B. The design and specifications of the crossing to be approved by BGCMA. The crossing design must allow for free flow and be able to accommodate the 1:50 year flood event without causing erosion, eroding itself or being washed away.

  Please note that the applicable section 21 application in terms of the NWA has been submitted to BGCMA - through consultation with BGCMA the design specifications for the upper drainage line crossing will be determined. The application is still in process. Please see BGCMA's comments in Appendix F of the Draft BAR.

- The maintenance of watercourses located adjacent to the sites identified for vegetation clearing and cultivation of apple orchards.

The development is proposed on portion 7 of Farm No. 466 situated in Elgin Valley approximately 14km south east from Grabouw. The property is bordered by agricultural activities on the west and northern boundaries and the Houwhoek Nature Reserve (World Heritage Site) on the southern and eastern boundaries. Currently there is 31ha of irrigated cultivated land on the property, consisting of 26ha of apples and 5ha of pears.

This MMP has been prepared principally in compliance with the requirements of "Annexure A – Guideline for Compiling a Maintenance Management Plan".

This document, together with the conditions in the EMPr, Environmental Authorisation, Water Use Authorisation, must be adhered to.

1.1. RESPONSIBLE PARTY

The responsible party that will be implementing the MMP is Vacation Station (Pty) Ltd.

Vacation Station (Pty) Ltd has committed itself to a set of values that include the maintenance of good relations and transparent communications with all stakeholders, and the dynamic engagement of the larger community.

Vacation Station (Pty) Ltd undertakes to implement suitable management systems for all the areas and aspects of this operation. This will ensure that development itself and management of the project will comply with legal, technical, environmental and transformation policies and standards.

Vacation Station (Pty) Ltd intends to enable continuous improvement in legal compliance and the sustainable operation of the site. This MMP intends to further guide the achievement of the strategic objectives of the organization at the project site.

The satisfactory implementation of the MMP on site will require both the full support and commitment of all personnel.

1.2. AUTHOR

Eco Impact is an independent consulting company and has no interest in any business related to the development site, nor will it receive any payment or benefit other than fair remuneration for the task undertaken, as required in terms of the NEMA Regulations, 2014 (as amended).

This report has been prepared by Lauren Abrahams, of Eco Impact, an environmental consultancy, engaged in providing professional services in the field of environmental planning, -systems, -auditing and -biodiversity assessment and -management.

Lauren Abrahams has completed her professional registration in terms of section 20(3)(b) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003) as a Candidate Natural Scientist in the field of practice Biological Science (Registration number 100126/12). She obtained her B Tech in Oceanography at the Cape Peninsula University of Technology in 2010.

Lauren has trained as a Junior Environmental Assessment Practitioner since July 2015 and has been involved in the compilation, coordination and management of Basic Assessment Reports, Environmental Impact Assessments, Environmental Management Programmes, Waste Licence Applications, Water Use Licence Applications for numerous clients.

1.3. DEFINITIONS

Auditing:	A systematic and objective assessment of an organization's activities and services conducted and documented on a periodic basis based to a (e.g. ISO 19011:2003) standard.
Biodiversity:	The variety of life in an area, including the number of different species, the genetic wealth within each species, and the natural areas where they are found.
Contractor:	An employer, as defined in section 1 of the Occupational Health and Safety Act 85 of 1993, who performs construction work and includes principal contractors.
Developer:	One who builds on land or alters the use of an existing building for some new purpose.
Environment:	A place where living, non-living and man-made features interact, and where life and diversity is sustained over time.
Evaporation:	The change by which any substance (e.g. water) is converted from a liquid state into and carried off as vapour.
Groundwater:	Subsurface water in the zone in which permeable rocks, and often the overlaying soil, are saturated under pressure equal to or greater than atmospheric.
Independent:	Is independent and has no interest in any business related to the development site, nor will receive any payment or benefit other than fair remuneration for the task undertaken.
Landowner:	Holder of the estate in land with considerable rights of ownership or, simply put, an owner of land.
Monitoring:	A systematic and objective observation of an organisation's activities and services conducted and reported on regularly.
Natural vegetation:	All existing vegetation species, indigenous or otherwise, of trees, shrubs, groundcover, grasses and all other plants found growing on a site.
Pollution:	The result of the release into air, water or soil from any process or of any substance, which is capable of causing harm to man or other living organisms supported by the environment.
Protected Plants:	Plant species officially listed under the Threatened or Protected Species regulations as well as on the Protected Plants List (each province has such a list), and which may not be removed or transported without a permit to do so from the relevant provincial authority.
Red Data Species:	Plant and animal species officially listed in the Red Data Lists as being rare, endangered or threatened.
Rehabilitation:	Making the land useful again after a disturbance. It involves the recovery of ecosystem functions and processes in a degraded habitat. Rehabilitation does not necessarily re-establish the pre-disturbance

	condition, but does involve establishing geological and hydro logically stable landscapes that support the natural ecosystem mosaic.
Site:	Property or area where the proposed development will take place.

1.3.1. ACRONYMS

DEA&DP:	Department of Environmental Affairs and Development Planning
DWS:	Department of Water and Sanitation
ECO:	Environmental Control Officer
EA:	Environmental Authorisation
EIA:	Environmental Impact Assessment
EM:	Environmental Manager
EMP:	Environmental Management Programme
EO:	Environmental Officer
ER:	Engineer's Representative
I&AP:	Interested and Affected Party
IEM:	Integrated Environmental Management
MS:	Method Statement
PM:	Project Manager
SANS:	South African National Standards

1.4. BACKGROUND

An Environmental Authorisation and Water Use Licence have been applied for and if granted must be complied with.

The following activities are proposed:

The development is proposed on portion 7 of Farm No. 466 situated in Elgin Valley approximately 14km south east from Grabouw. The property is bordered by agricultural activities on the west and northern boundaries and the Houwhoek Nature Reserve (World Heritage Site) on the southern and eastern boundaries. Currently there is 31ha of irrigated cultivated land on the property, consisting of 26ha of apples and 5ha of pears.

Vegetation Clearing - LA 1 (PREFERRED)

Four additional sites (sites A - D) were identified on portion 4 of Farm No. 466 for the establishment and cultivation of apple orchards (see Appendix A1). Following the exclusion of the identified no-go areas (indicated by the green polygons labelled as buffers on the SDP - Appendix B1) by the appointed specialists the proposed Sites A - D have a collective development footprint of 16.5ha. The apple orchards will be irrigated with surface water abstracted from the dam located on the property. An application for the additional water rights has been submitted to BGCMA.

Upgrading of Drainage Line Crossing

The existing drainage line crossing located between sites A and B must be upgraded to ensure access to site B. The design and specifications of the crossing to be approved by BGCMA. The

crossing design must allow for free flow and be able to accommodate the 1:50 year flood event without causing erosion, eroding itself or being washed away.

Please note that the applicable section 21 application in terms of the NWA has been submitted to BGCMA - through consultation with BGCMA the design specifications for the upper drainage line crossing will be determined. The application is still in process. Please see BGCMA's comments in Appendix F of the Draft BAR.

2. RELEVANT LEGISLATION AND POLICIES

Applicable Legislation Identified

1. ADVERTISING ON ROADS AND RIBBON DEVELOPMENT ACT, 21 OF 1940
2. BASIC CONDITIONS OF EMPLOYMENT ACT, 75 OF 1997
3. COMPENSATION FOR OCCUPATIONAL INJURIES AND DISEASES ACT, 130 OF 1993
4. CONSERVATION OF AGRICULTURAL RESOURCES ACT, 43 OF 1983
5. CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, 1996
6. ENVIRONMENT CONSERVATION ACT, 73 OF 1989, WESTERN CAPE NOISE CONTROL REGULATIONS
7. EMPLOYMENT EQUITY ACT, 55 OF 1998
8. ENVIRONMENT CONSERVATION ACT, 73 OF 1989
9. FENCING ACT, 31 OF 1963
10. HAZARDOUS SUBSTANCES ACT, 15 OF 1973
11. LABOUR RELATIONS ACT, 66 OF 1995
12. NATIONAL HEALTH ACT 61 OF 2003
13. NATIONAL HEALTH ACT 61 OF 2003 REGULATIONS RELATING TO THE MANAGEMENT OF HUMAN REMAINS
14. NATIONAL BUILDING REGULATIONS AND BUILDING STANDARDS ACT, 103 OF 1977
15. NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 107 OF 1998
16. NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 39 OF 2004
17. NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 10 OF 2004
18. NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 59 OF 2008
19. NATIONAL FORESTS ACT, 84 OF 1998
20. NATIONAL HERITAGE RESOURCES ACT, 25 OF 1999
21. NATIONAL VELD AND FOREST FIRE ACT, 101 OF 1998
22. NATIONAL WATER ACT, 36 OF 1998
23. OCCUPATIONAL HEALTH AND SAFETY ACT, 85 OF 1993
24. THEEWATERSKLOOF LOCAL MUNICIPALITY: AIR QUALITY MANAGEMENT
25. THEEWATERSKLOOF LOCAL MUNICIPALITY: COMMUNITY FIRE SAFETY
26. THEEWATERSKLOOF LOCAL MUNICIPALITY: FENCING AND WALLS
27. THEEWATERSKLOOF LOCAL MUNICIPALITY: IRRIGATION WATER
28. THEEWATERSKLOOF LOCAL MUNICIPALITY: OUTDOOR ADVERTISING AND SIGNAGE
29. THEEWATERSKLOOF LOCAL MUNICIPALITY: STORM WATER MANAGEMENT
30. THEEWATERSKLOOF LOCAL MUNICIPALITY: WASTE MANAGEMENT
31. THEEWATERSKLOOF LOCAL MUNICIPALITY: WATER SUPPLY, SANITATION SERVICES AND INDUSTRIAL EFFLUENT
32. TOBACCO PRODUCTS CONTROL ACT, 83 OF 1993
33. WATER SERVICES ACT, 108 OF 1997

3. SITE LOCATION AND DESCRIPTION/PROJECT LOCATION & LAYOUT PLANS

3.1. LOCALITY MAP

See Appendix A1

3.2. LAYOUT PLAN

See Appendix B1 and B2

3.3. AERIAL PHOTOGRAPHS

See Appendices A and B

3.4. DESCRIBE THE SITE

The development is proposed on portion 7 of Farm No. 466 situated in Elgin Valley

approximately 14km south east from Grabouw. The property is bordered by agricultural activities on the west and northern boundaries and the Houwhoek Nature Reserve (World Heritage Site) on the southern and eastern boundaries. Currently there is 31ha of irrigated cultivated land on the property, consisting of 26ha of apples and 5ha of pears.

3.4.1 THE TYPE OF ECOSYSTEM

The site is located within the G40D quaternary catchment. The primary aquatic features on the site are the drainage lines and associated wetland land areas and man-made dams, which eventually feeds into the Ribbok/Krom River System. These drainage lines originates from the Houwhoek mountain range surrounding the property along the northern and eastern borders. It flows southwest, across the site and through the farms where it eventually connects to the Ribbok/Krom River tributary which feeds into the Palmiet River system. The Ribbok/Krom River itself is severely transformed due to agricultural developments which depend largely on irrigation derived from dams built within this river system and surrounding drainage lines.

3.4.2 BIODIVERSITY FEATURES

Terrestrial Vegetation Characteristics:

The vegetation within the proposed development areas consists of mainly Kogelberg Sandstone Fynbos (status = Critically Endangered) in sites A and B and Elgin Shale Fynbos (status = Critically Endangered) in sites C and D (see Appendix D).

The fynbos vegetation at sites A and B consists of a very similar flora. Both sites were heavily disturbed previously. Site A was ploughed previously and the upper reach were excavated for gravel, but has not been tilled for a number of years now (about 3 years). A number of species re-established here from seed, e.g. several species of *Serotinous proteaceae*, which blew in from the adjacent nature reserve after the recent fire. Most of site B was heavily disturbed several years ago, but several species has also been re-established on the site. During the botanical impact assessment, as was conducted by Mr. Jan Vlok during December 2017 a total of 119 different plant species were recorded on sites A and B, most of these species occurred in small undisturbed patches within these two sites which remain primarily along and within the drainage lines and associated wetland areas. This probably represents about 70-80% of the total number of species that occur in the affected areas. Only two of the species recorded are threatened species, *Diastella thymelaeiodes* ssp. *thymelaeiodes* (status = Near Threatened and *Otholobium thomii* (status = Endangered) which was recorded immediately adjacent to the drainage line areas. It is unlikely that any other threatened plant species occur at these two sites. There is a clear dominance of pioneer species such as *Athanasia trifurcate* at site A, and graminoids (Cyperaceae, Poaceae and Restionaeae) at site B.

Both the renosterveld sites at C and D also consist of previously ploughed areas. Both areas have not been tilled for a number of years (about 3-5 years). A total of 57 species were recorded during the botanical survey on these two sites most of which are indigenous 'weedy' species. No threatened species were noted, or are expected to occur on these two sites. There are clear indicators of disturbance at site C such as *Stoebe plumosa* and *Anthospermum aethiopicum*. And on site D the dominant disturbance indicator plants are *Helichrysum cymosum* and *H. pandurifolium*.

Wetland/Drainage Line Characteristics on Site:

Sites A and B have the most significant wetland characteristics associated with the natural and man-made drainage lines and dam located mainly along the northwestern and southern borders of the proposed development sites. These wetlands, drainage lines and dam have also been mapped as Ecological Support Areas (Res) in the latest Western Cape Biodiversity Spatial Plan (2017) as well as artificial and natural Wetland Freshwater Priority Areas (NFEPAs).

The wetland indicator species within sites A and B as recorded on site are species such as *Capeochloa cincta*, *Carpha glomerata, Drosera capensis, Platycaulis callistachyus and Erica perspicua* which is locally abundant. These wetland and drainage line areas have also been invaded by *Acacia longifolia*, but not in dense stands.

The instream and riverbank habitat integrity of the drainage line which separates sites A and B (northwestern border of site B) is still in a mostly natural and stable condition except for the two man-made river crossings which were historically constructed to gain access to site B. This drainage has an average width of approximately 15m. The lower lying crossing just above the dam at site B was constructed by infilling the drainage line with a gravel crossing of about 30m long and 10m wide. This crossing was therefore constructed at one of the widest points in the drainage line and has since washed away at the eastern end of the crossing and can no longer be used. Another infilled stream crossing was created at the top of the drainage line which is about 8m long and 5m wide, this crossing was created at a narrowest point in the drainage line and is therefore the preferred crossing in terms of minimizing potential impacts and maintenance requirements.

The wetlands and drainage line areas remaining within and along the borders of site A have been significantly transformed and modified due to previous mining of sand and gravel and vineyard plantations. The higher lying section of the drainage line running along the northwestern border of the site has no remaining wetland characteristics, but is still important in maintaining hydrological connectivity of the drainage line originating from the Houwhoek mountains which feeds the lower lying wetlands areas on site.

There is no evidence of any wetlands conditions or drainage lines at site C.

A narrow channeled drainage line runs along the southeastern border of site D. The average width of the drainage line is approximately 2m wide. Some wetland indicator species such as *Zantedeschia aethiopica* is located within the channeled drainage line, and due to the channelization taking place several years ago (more than 10) the instream habitat integrity and stability of the drainage line is relatively good.

Management Objectives:

The overall freshwater ecological condition of the wetlands, drainage lines, dams and general remaining riparian habitats are deemed to be moderately to largely modified and the ecological importance and sensitivity low. However the functioning of the drainage lines and associated wetlands areas as assessed on sites A, B and D are important in maintaining current hydrological functioning and freshwater ecosystems on the sites and surrounds. These areas together with adequate buffer areas have therefore been delineated as no-go areas and are recommended to be demarcated by a land surveyor as no-development areas before site clearance commences and remain demarcated throughout the operational phase of the proposed activities to ensure ongoing protection of these areas.

The only development activity allowed within these areas is the upgrade and maintenance associated with the higher lying drainage line crossing to gain access to site B. Before the drainage line crossing is upgraded a design that meets the required specifications approved by BGCMA must be submitted and approved for this crossing. The design must allow for free flow and be able to accommodate the 1:50 year flood event without causing erosion, eroding itself or being washed away. The materials to be used and design of the formal drainage line crossing must also not lead to erosion of the crossing and surrounds. The construction and maintenance of this crossing must take place under the guidance of an Environmental Management Plan ("EMP"). An Environmental Control Officer ("ECO") must be appointed before construction commences to ensure that all requirements of the EMP are being implemented and monitor compliance throughout the construction and maintenance/operational phases. A detailed construction method statement must be provided by the developer/landowner to be approved by the ECO before commencement and must describe how construction activities will be implemented to ensure compliance with the EMP. The associated impacts of construction and maintenance/operation of this crossing must be strictly managed and kept to minimum as far as possible.

3.4.3 CONDITION OF THE RIVER CHANNEL

Sites A and B have the most significant wetland characteristics associated with the natural and man-made drainage lines and dam located mainly along the northwestern and southern borders

of the proposed development sites. These wetlands, drainage lines and dam have also been mapped as Ecological Support Areas (Res) in the latest Western Cape Biodiversity Spatial Plan (2017) as well as artificial and natural Wetland Freshwater Priority Areas (NFEPAs).

The wetland indicator species within sites A and B as recorded on site are species such as *Capeochloa cincta*, *Carpha glomerata, Drosera capensis, Platycaulis callistachyus and Erica perspicua* which is locally abundant. These wetland and drainage line areas have also been invaded by *Acacia longifolia*, but not in dense stands.

The instream and riverbank habitat integrity of the drainage line which separates sites A and B (northwestern border of site B) is still in a mostly natural and stable condition except for the two man-made river crossings which were historically constructed to gain access to site B. This drainage has an average width of approximately 15m. The lower lying crossing just above the dam at site B was constructed by infilling the drainage line with a gravel crossing of about 30m long and 10m wide. This crossing was therefore constructed at one of the widest points in the drainage line and has since washed away at the eastern end of the crossing and can no longer be used. Another infilled stream crossing was created at the top of the drainage line which is about 8m long and 5m wide, this crossing was created at a narrowest point in the drainage line and is therefore the preferred crossing in terms of minimizing potential impacts and maintenance requirements.

Photo 1.1: Drainage line and existing crossings (access roads) to site B.

Photo 1.2: Instream and bank habitat at Site B drainage line.

Photo 1.3: Instream and bank habitat at Site B drainage line.

Photo 1.4: Lower lying crossing (not recommended to be used as a drainage line crossing)

Photo 1.5: Higher lying crossing (recommended to be upgraded and used as a drainage crossing for access to site B)

The wetlands and drainage line areas remaining within and along the borders of site A have been significantly transformed and modified due to previous mining of sand and gravel and vineyard plantations. The higher lying section of the drainage line running along the north-western border of the site has no remaining wetland characteristics, but is still important in maintaining hydrological connectivity of the drainage line originating from the Houwhoek mountains which feeds the lower lying wetlands areas on site.

Photo 2.1 Upper reaches of transformed drainage line at site A.

Photo 2.2 Lower reaches of transformed drainage line at site A.

Photo 2.3 Instream habitat condition of upstream reaches of transformed/excavated drainage line at site A.

Photo 2.4 Instream habitat conditions of downstream reaches of transformed drainage line and wetland area below dam wall at site A.

There is no evidence of any wetlands conditions or drainage lines at site C.

Photo 3.1: Site C

A narrow channeled drainage line runs along the southeastern border of site D. The average width of the drainage line is approximately 2m wide. Some wetland indicator species such as *Zantedeschia aethiopica* is located within the channeled drainage line, and due to the channelization taking place several years ago (more than 10) the instream habitat integrity and stability of the drainage line is relatively good.

Photo 4.1: Channeled drainage line along southeastern border of site D.

Photo 4.2: Instream habitat condition of channeled drainage line along southeastern border of site D.

3.4.4 DESCRIBE THE RIPARIAN BUFFER ZONES

The overall freshwater ecological condition of the wetlands, drainage lines, dams and general remaining riparian habitats are deemed to be moderately to largely modified and the ecological importance and sensitivity low. However the functioning of the drainage lines and associated wetlands areas as assessed on sites A, B and D are important in maintaining current hydrological functioning and freshwater ecosystems on the sites and surrounds. These areas together with adequate buffer areas have therefore been delineated as no-go areas and are recommended to be demarcated by a land surveyor as no-development areas before site clearance commences and remain demarcated throughout the operational phase of the proposed activities to ensure ongoing protection of these areas. Refer to figures 7.1 and 7.2 below for delineation of the recommended no-go areas.

3.4.5 FLOODING

Vegetation Clearing

A complete run-off development plan must be developed and approved in accordance with Conservation of Agricultural Resources Act, 43 of 1983.

4. OBJECTIVE OF MAINETENENCE ACTIVITRIES/TERMS OF REFERNCE

4.1 OBJECTIVES

Vegetation Clearing - LA 1

Four additional sites (sites A - D) were identified on portion 4 of Farm No. 466 for the establishment and cultivation of apple orchards (see Appendix A1). No-go areas have been delineated by specialist studies conducted for the proposed development to provide a sufficient

buffer for the protection of adjacent botanical and wetland areas (indicated by the green polygons labelled as buffers on the SDP - Appendix B1).

Upgrading of Drainage Line Upper Crossing

The existing drainage line crossing located between sites A and B must be upgraded to ensure access to site B. The design and specifications of the crossing to be approved by BGCMA. The crossing design must allow for free flow and be able to accommodate the 1:50 year flood event without causing erosion, eroding itself or being washed away.

Please note that the applicable section 21 application in terms of the NWA has been submitted to BGCMA - through consultation with BGCMA the design specifications for the upper drainage line crossing will be determined. The application is still in process. Please see BGCMA's comments in Appendix F of the Draft BAR.

Erosion control and maintenance will be an on-going process, the landowner must protect the cultivated land before/during/after the cultivation of the proposed sites effectively against excessive soil loss as a result of erosion through the action of water and wind.

The management of alien invasive vegetation on banks and the re-establishment of indigenous plant species in riparian zone need to be undertaken where required.

To provide set guidelines in a management plan for correct management procedures and methods, in such a manner that they may be flexible in as much as situations change.

This MMP will facilitate the manager's annual planning in terms of allocating staff, time and financial resources towards management goals and responsibilities.

4.2 TERMS OF REFERENCE

- Review previous work done in the area and describe baseline conditions that exist in the study area.
- Provide a full report in accordance with the "Annexure A – Guideline for Compiling a Maintenance Management Plan".
- Identify and assess any cumulative impacts arising from the proposed project.
- Identify and list all legislation that is relevant to the development proposal.
- Recommend appropriate, practicable mitigation measures that will reduce all major (significant) impacts or enhance potential benefits, if any.
- Indicate limitations and assumptions.
- This report should clearly indicate any constraints that would need to be taken into account.
- The objectivity of the EAP performing work under this appointment must not be compromised under any circumstances.

5. DESCRIPTION OF MAINTENANCE ACTIVITIES/BRIEF SUMMARY OF THE PROJECT

5.1. DESCRIPTION OF THE PROPOSED TASKS

Once construction is complete, the following tasks are proposed during the operational phase:

A. Clearing of Alien species

Throughout the operational phase the indigenous vegetation currently on the banks of the watercourses in the identified buffer areas are to remain untouched.

The developer must implement alien clearing management programmes in the buffer areas (around the dam as well as the cultivated areas). Clearing of alien invasive species must take place, in particular gum trees (Eucalyptus sp.) which are prevalent upstream and can have a significant negative impact on riparian areas through inhibiting undergrowth and thereby enhancing erosion impacts. All alien invasive trees, i.e. the large stance of cotton wood (Populus sp.), the large blue gum trees (Eucalyptus), black wattle and port jackson willow (Acacia spp.) must be eradicated from the stream and green buffer area and followed up yearly to prevent re-growth.

According to Conservation of Agricultural Resources Act, (Act 43 of 1983), Regulation 15E methods of controlling weeds and alien plants are as follow:

- Uprooting; felling; cutting or burning
- Treatment with a weed killer that is registered for use in connection with such plants in accordance with the directions for the use of such
- Biological control carried out in accordance with the stipulations of the Agricultural Pests Act,(Act no 36 of 1983)

Combination of one or more methods mentioned above, and any action taken to control alien plants shall be executed with caution and in a manner that will cause least possible damage to the environment.

B. Erosion Control

If any erosion and/or degradation of the affected water channels are noticed immediate action must be taken by the developer to rectify the situation. Corrective and preventative measures taken will depend upon type and extent of erosion and/or degradation occurring.

Management and control of erosion will be an ongoing process and must be closely monitored and immediately rectified by the municipality.

The commitment remains to keep to the existing standards as evident. The developer must implement erosion control measures to ensure that no erosion occurs on site. The area must also be regularly monitored and erosion maintenance measures implemented to prevent erosion. Depending on type and extent of erosion occurred specialists may be contacted to provide specific recommendations.

Mitigation measures:

- A suitable soil conservation work to be constructed and thereafter be maintained in order to divert runoff water from other land or to restrict the run-off speed of run-off water,
- The land concerned or sites shall be cultivated in accordance with such methods or be laid out in such a manner that the run-off speed of run-off water is restricted and that the surface movement of soil particles be restricted,
- To establishment permanent cover vegetation between orchards to prevent soil erosion,
- Suitable wind breaks shall be constructed or suitable vegetation to be established to serve as a wind break.

C. Clearing of silt

The applicable river sections and associated infrastructure must be monitored and kept free of silt/sediment, waste or debris built-up and intrusive growth of invasive alien plants at least annually before the main rainfall season and all excess silt built-up, waste or debris must be removed immediately.

Clearing of silt after any flood events may be required during the operational phase.

Silt will be removed using an excavator or by hand, depending on the volume of silt build-up. Machinery should be checked for oil and fuel leaks, or possible soil and water contamination both prior to and during river maintenance activities.

The following are also key guiding general principles of environmentally-sound river maintenance:

(Some points were adapted from a report by Ninham Shand, 1999 and Western Cape Nature Conservation river maintenance guidelines).

a) Minimise the spatial extent of disturbance

Refugia (hiding places for aquatic organisms) are a critical component of natural river ecosystems and play an important role in maintaining biodiversity. Recovery of aquatic biota on a large scale is dependent on the presence of un-impacted reaches of rivers with refugia, thus modifying long stretches of river channel is not desirable due to the impaired re-colonisation and recruitment by the aquatic organisms. Long stretches of the river must therefore not be modified.

b) Maximise physical diversity

Environmentally sound river maintenance is to maintain physical/habitat diversity where it exists, or to create it where it no longer exists or where it has been removed by previous actions. This physical diversity will ensure diversity in the plant and animal components and thereby promote the development of biologically intact, healthy, and stable aquatic communities. Although restoration to pre-disturbance condition often may not be possible, the safe-guarding or increasing of the range of habitats along a section of the river would maintain the richness of vertebrates and invertebrates. Long stretches of the river must therefore not be modified.

c) Minimise the frequency of maintenance activities (temporally)
Biological recovery of rivers is dependent on their physical recovery and therefore river features such as pools and riffles (habitat diversity) must become established before complete recovery of aquatic communities can occur. These features are normally flow dependant, that is, work with nature, if they are to be self-maintaining. The planning and design of river maintenance activities should therefore be done in such a manner as to prevent the necessity to repeat the operation each year. Annual habitat destruction and subsequent aquatic biota depletion will decrease the system's resilience to cope with recovery.

5.1.1. THE AMOUNT OF MATERIAL THAT WILL BE DEPOSITED, REMOVED OR MOVED

Unknown.

Please note that the applicable section 21 application in terms of the NWA has been submitted to BGCMA - through consultation with BGCMA the design specifications for the upper drainage line crossing will be determined. The application is still in process. Please see BGCMA's comments in Appendix F of the Draft BAR.

5.1.2. LOCATION OF THE STORAGE/DISPOSAL OF THE MATERIAL AND HOW IT WILL BE TRANSPORTED

Unknown.

Alien species to be stored and transported in accordance with municipal alien clearing programme procedures. No on-site burying, dumping or stockpiling of any weeds and aliens or invasive species must occur. They should be removed from the site and dumped at a suitable dumping site from which seed cannot escape.

5.1.3. COMMENCEMENT DATE AND DURATION IN DAYS FOR EACH TASK

Commencement dates are not clear at this point as this will be dependent on the granting of licences and authorisations.

Maintenance activities in rivers could lead to significant damage if interrupted by high flows or floods. Rather undertake activities during the dry season. Consult specialists with regard to the most appropriate times for disturbance to riparian vegetation and aquatic organisms.

5.2. IMPACTS ON THE ENVIRONMENT

5.2.1. DESCRIPTION OF THE IMPACTS

Please refer to the method statement tables under Annexure 1 where all impacts and mitigation measures are described in context related to the different tasks. These tasks and impacts have been taken into account for the assessments conducted for the project which provides input into the Maintenance Management Plan.

See "BASIC ASSESSMENT REPORT" for further details.

5.2.2. ANY MITIGATION OR MANAGEMENT MEASURES

See section 5.2.1 above, the Basic Assessment Report and EMPr for further mitigation measures recommended.

5.3. SPECIALIST INPUTS

5.3.1. A DESCRIPTION OF ANY ACTIVITIES THAT HAVE COMMENCED ON SITE

No activities have commenced on site.

6. RESPONSIBLE PARTIES/ROLES AND RESPONSIBILITIES

6.1.1. DETAILS OF PERSON TO UNDERTAKE ACTIVITIES

Vacation Station (Pty) Ltd
Mr. Wilmer Ferreira / Mr. Dimitri Jacobs
PO Box 43
Grabouw
7160
Tel: 021 859 7536
Email: cornerfarm@twk.co.za

6.1.2. LANDOWNER DETAILS

Vacation Station (Pty) Ltd
Mr. Wilmer Ferreira / Mr. Dimitri Jacobs
PO Box 43
Grabouw
7160
Tel: 021 859 7536
Email: cornerfarm@twk.co.za

6.2. RESPONSIBILITIES AND FUNCTIONS

The developer is responsible for all maintenance and planned activities during the operational phase of the development.

7. ENVIRONMENTAL EDUCATION/ENVIRONMENTAL AWRENESS PLAN

Before work is done in accordance with this MMP, persons who will be conducting the work must undergo environmental awareness training as outlined in the EMPr.

8. IMPLEMENTATION MANGEMENT

No camp site or access route will be required. Alien eradication dealt with under “description of maintenance activities”.

9. GERNERAL CONTROL

The OEMPr as included in the EMPr must be approved by the deciding authority and subsequently complied with by the developer during the operational phase of the development.

10. RESTORATION/REHABILITATION SPECIFICATIONS & SITE CLEAN UP

The maintenance activities should not require rehabilitation measures. The maintenance activities should ensure that the environment in maintained in a suitable manner. The only rehabilitation that may be required is the planting of vegetation is cases where erosion is severe. No litter may be left behind my any persons conducting maintenance work.

Any rehabilitation and remedial action in relation to soil erosion in the event it does occur needs to be in accordance with regulation 14 of the CARA. According to Regulation 14 (1*) "If a land user disturbs or denudes any land on his farm unit for purposes other than prospecting or mining activities; (c) - such land user shall by means of as many of the following measures as are necessary in his situation, effectively restore and reclaim that disturbed or denuded land. (i) Topsoil shall be removed and kept separate with a view to replacing it later on the disturbed or denuded land. (ii) Topsoil shall be used to stabilize the sides of a hollow that has been caused by the exploitation or removal of material and, where possible, to reclaim part of the disturbed or denuded land. (iv) The flow pattern of run-off water, the topography and the slope shall, depending on the volume of material exploited or removed, be restored as closely as possible to the original condition. (v) Suitable vegetation shall be established on the land concerned in order to expedite the restoration and reclamation thereof. (vii) A suitable soil conservation work shall be constructed and thereafter be maintained in order to protect the land concerned against excessive soil loss through the action of water and wind or in order to collect sediment from run-off water. "*

11. ENVIRONMENTAL MONITORING AND REPORTING/AUDFITING

A monitoring programme must be implemented that detects changes that will inform intervention or remedial measures for good environmental performance. The data collection, management and reporting must be documented and be made available for inspection.

TABLE 1: TABLE FOR MONITORING OF ACTIONS

Part of the watercourse that is monitored	Frequency of monitoring	Monitoring procedure	How results are analysed and presented	Comments

ANNEXURE 1.4 ASSESSMENT CRITERIA

Criteria	**Description**		
Nature	A description of what causes the effect, what will be affected, and how it will be affected.		
	Type	**Score**	**Description**
Extent (E)	None (No)	1	Footprint
	Site (S)	2	On site or within 100 m of the site
	Local (L)	3	Within a 20 km radius of the centre of the site
	Regional (R)	4	Beyond a 20 km radius of the site
	National (Na)	5	Crossing provincial boundaries or on a national / land wide scale
Duration (D)	Short term (S)	1	0 – 1 years
	Short to medium (S-M)	2	2 – 5 years
	Medium term (M)	3	5 – 15 years
	Long term (L)	4	> 15 years
	Permanent(P)	5	Will not cease
Magnitude (M)	Small (S)	0	will have no effect on the environment
	Minor (Mi)	2	will not result in an impact on processes
	Low (L)	4	will cause a slight impact on processes
	Moderate (Mo)	6	processes continuing but in a modified way
	High (H)	8	processes are altered to the extent that they temporarily cease
	Very high (VH)	10	results in complete destruction of patterns and permanent cessation of processes.
Probability (P) **The likelihood of the impact actually occurring.** **Probability is estimated on a scale, and a score assigned**	Very improbable (VP)	1	probably will not happen
	Improbable (I)	2	some possibility, but low likelihood
	Probable (P)	3	distinct possibility
	Highly probable (HP)	4	most likely
	Definite (D)	5	impact will occur regardless of any prevention measures
Significance (S)	Determined through a synthesis of the characteristics described above: **S = (E+D+M) x P** Significance can be assessed as low, medium or high		
Low: < 30 points:	The impact would not have a direct influence on the decision to develop in the area		
Medium: 30 – 60 points:	The impact could influence the decision to develop in the area unless it is effectively mitigated		
High: < 60 points:	The impact must have an influence on the decision process to develop in the area		
No significance	When no impact will occur or the impact will not affect the environment		
Status	Positive (+)		Negative (-)
The degree to which the impact can be reversed	Completely reversible (R)	90-100%	The impact can be mostly to completely reversed with the implementation of the correct mitigation and rehabilitation measures.
	Partly reversible (PR)	6-89%	The impact can be partly reversed providing that mitigation measures as stipulated in the EMP are implemented and rehabilitation measures are undertaken
	Irreversible (IR)	0-5%	The impact cannot be reversed, regardless of the mitigation or rehabilitation measures taking place
The degree to which the impact may cause irreplaceable loss of resources	Resource will not be lost (R)	1	The resource will not be lost or destroyed provided that mitigation and rehabilitation measures as stipulated in the EMP are implemented
	Resource may be partly destroyed (PR)	2	Partial loss or destruction of the resources will occur even though all management and mitigation measures as stipulated in the EMP are implemented

	Resource cannot be replaced (IR)	3	The resource cannot be replaced no matter which management or mitigation measures are implemented.
The degree to which the impact can be mitigated	Completely mitigatible (CM)	1	The impact can be completely mitigated providing that all management and mitigation measures as stipulated in the EMP are implemented
	Partly mitigatible (PM)	2	The impact cannot be completely mitigated even though all management and mitigation measures as stipulated in the EMP are implemented. Implementation of these measures will provide a measure of mitigatibility
	Un-mitigatible (UM)	3	The impact cannot be mitigated no matter which management or mitigation measures are implemented.

ANNEXURE 2: METHOD STATEMENTS

Method Statements

It is not possible to develop detailed method statements at this stage as it is difficult to understand what maintenance measure (specifically) will be required when and where and to what extent.

The developer must provide written statements on environmentally sensitive aspects of the maintenance required. Environmentally sensitive aspects include by example excavations, work close to sensitive areas, erosion control, vegetation and silt removal, etc.

These method statements must be submitted to the competent authority (DEA&DP: Development Management) and approved prior to commencement such activities.

Methods Statement (MS) Content

The Method Statement must include a site plan, preparatory steps, materials, and supervision details.

Example of Environmental Method Statement Form:

METHOD STATEMENT

CONTRACT:……..…….. **DATE:**……..

PROPOSED ACTIVITY (give title of method statement and reference number from the EMP):

WHAT WORK IS TO BE UNDERTAKEN (pre work required/what is planned/access to and from the site/disposal of material):

WHERE ARE THE WORKS TO BE UNDERTAKEN (where possible, provide an annotated plan and a full description of the extent of the works):

START AND END DATE OF THE WORKS FOR WHICH THE METHOD STATEMENT IS REQUIRED:

Start Date:	End Date:

HOW ARE THE WORKS TO BE UNDERTAKEN (provide as much detail as possible, including annotated maps and plans where possible):

Note: please attach extra pages if more space is required

ACTIONS	POTENTIAL IMPACTS	SEVERITY OF IMPACTS (HIGH/MEDIUM/LOW)	MITIGATION MEASURES	CORRECTIVE/REMEDIAL MEASURES IF MITIGATION MEASURES ARE NOT IMPLEMENTED ON SITE

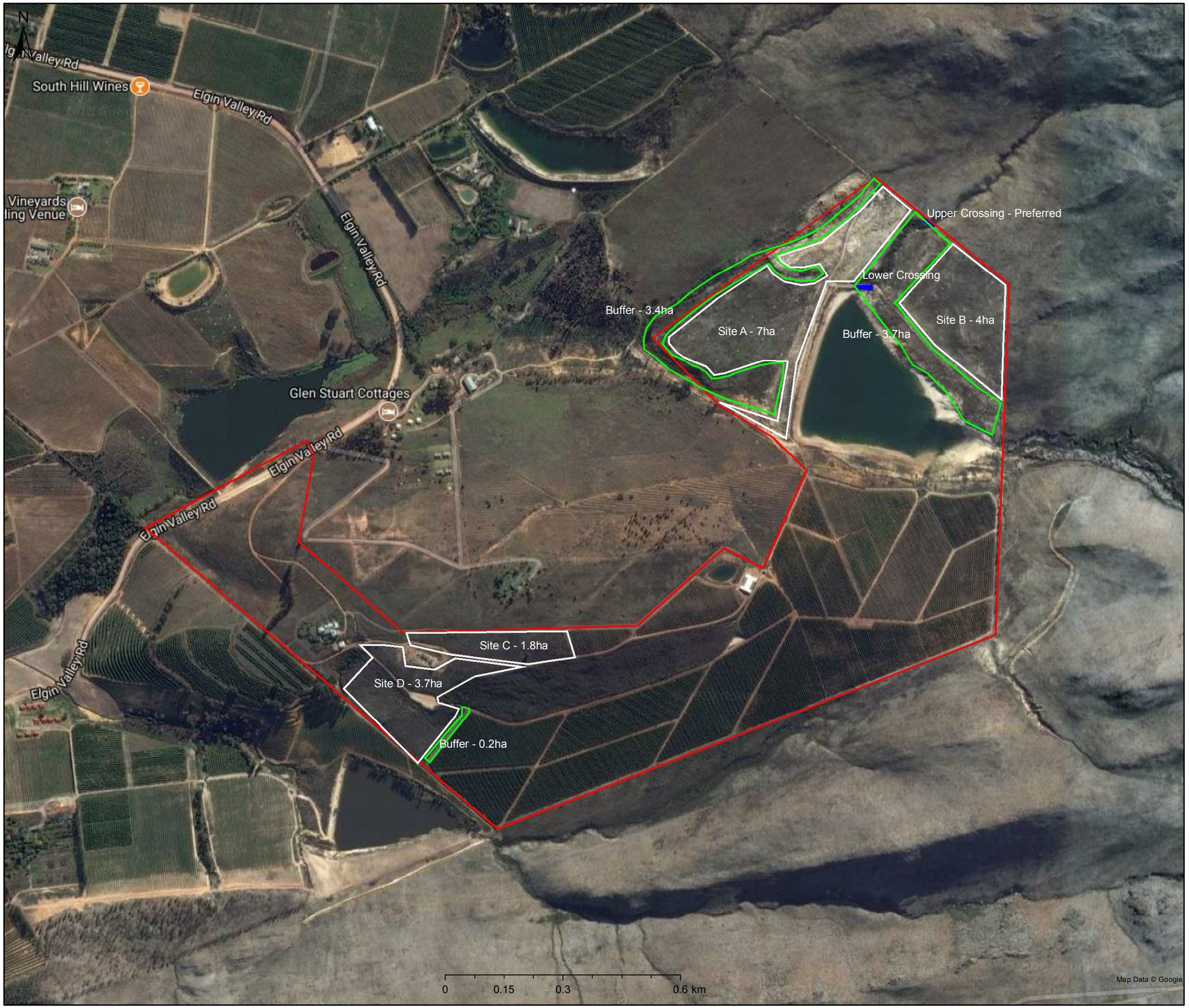
Corner Farm Portion 7 of Farm No. 466 Caledon

Scale: 1:9 028

Date created: February 22, 2018

Western Cape Government
Agriculture

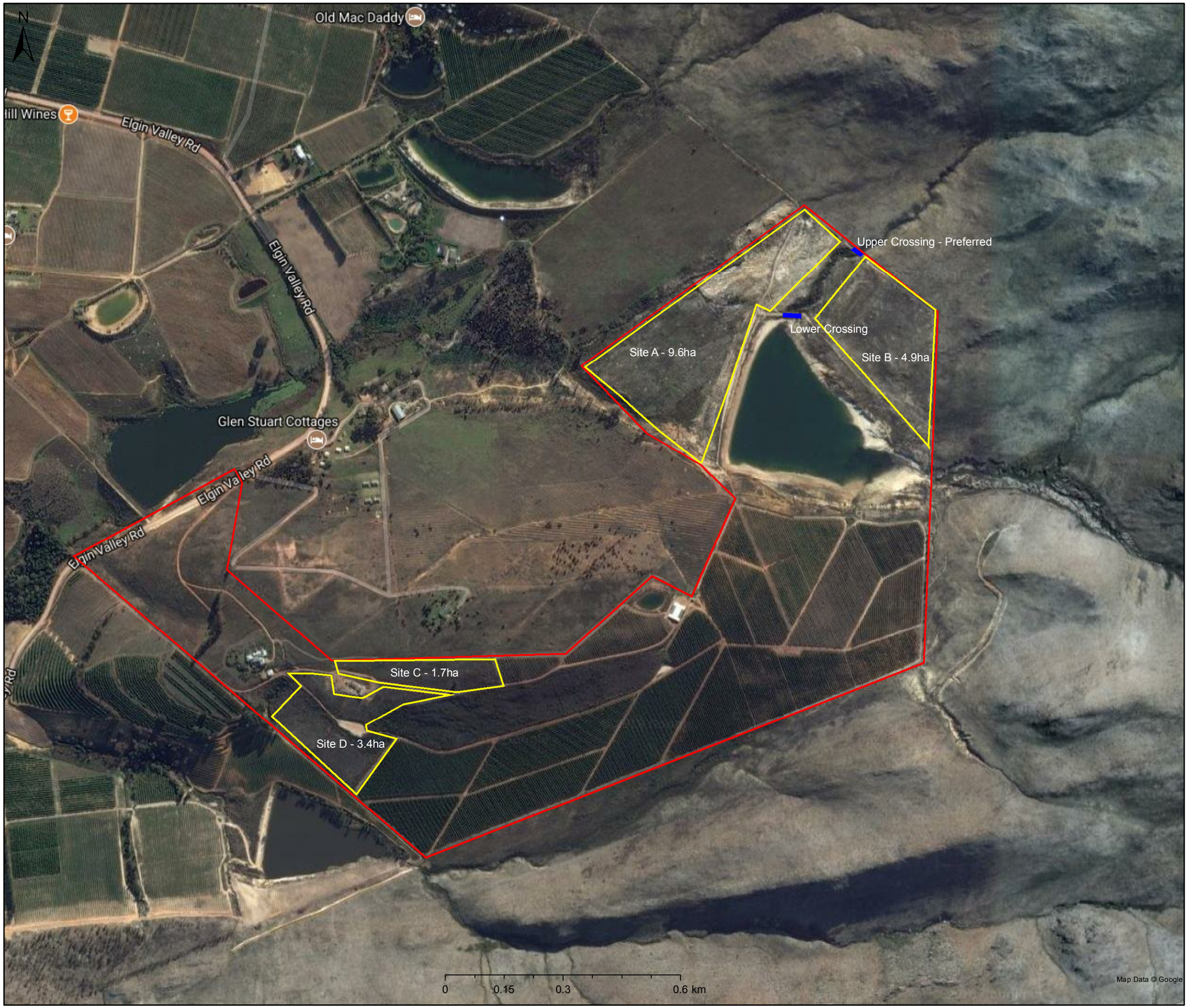
LA 1 - Preferred With No-Go Areas [~16.5ha]



Scale: 1:9 028

Date created: April 15, 2018

Western Cape Government
Agriculture



LA2 - Original Extent [19.6ha]

Scale: 1:9 028

Date created: April 15, 2018

Western Cape Government
Agriculture